

CLAIMS

What is claimed is:

1. A polyurethane elastomer comprising the reaction product of:
 - A) at least one aliphatic diisocyanate monomer;
 - B) at least one high molecular weight polyol;
 - C) at least one low molecular weight diol comprising an aromatic moiety; and
 - D) at least one saturated diol curing agent.
2. The elastomer of claim 1 wherein the aliphatic diisocyanate monomer is selected from the group consisting of dodecane-1,12-diisocyanate, dicyclohexylmethanediisocyanate, cyclohexanediisocyanate, isophoronediiisocyanate, the triisocyanate of HDI, the biuret of HDI, and tetramethylxylylene diisocyanate.
3. The elastomer of claim 2 wherein the aliphatic diisocyanate monomer is dicyclohexylmethanediisocyanate.
4. The elastomer of claim 1 wherein the high molecular weight polyol is selected from the group consisting of polytetramethylene ether glycol, polyoxypropylene glycol, ethylene oxide capped polyoxypropylene glycol, polyethylene adipate glycol, polypropylene adipate glycol, polybutylene adipate glycol, the polycarbonate polyols, and the polycaprolactone polyols.
5. The elastomer of claim 4 wherein the high molecular weight polyol is polytetramethylene ether glycol.

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6. The elastomer of claim 4 wherein the molecular weight of the high molecular weight polyol is in the range of from about 1000 to about 3000.

7. The elastomer of claim 1 wherein the low molecular weight diol comprising an aromatic moiety is selected from the group consisting of hydroquinone-di-hydroxyethyl ether, resorcinol-di-hydroxyethyl ether, ethoxylates of the bis-phenols, the tetramethylxylylene diols, and xylene glycol.

8. The elastomer of claim 7 wherein the low molecular weight diol comprising an aromatic moiety is hydroquinone-di-hydroxyethyl ether.

9. The elastomer of claim 1 wherein the saturated diol curing agent is selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, 1,4- butanediol, trimethylolpropane, cyclohexyldimethanol, and blends thereof.

10. The elastomer of claim 9 wherein the saturated diol curing agent is 1,4- butanediol.

11. The elastomer of claim 9 wherein the saturated diol curing agent is a blend of 1,4- butanediol and trimethylolpropane.

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1 12. A golf ball comprising a core and a cover, said cover comprising a polyurethane
2 elastomer comprising the reaction product of:

- 3 A) at least one aliphatic diisocyanate monomer;
4 B) at least one high molecular weight polyol;
5 C) at least one low molecular weight diol comprising an aromatic moiety; and
6 D) at least one saturated diol curing agent.

1 13. The golf ball of claim 12 wherein the aliphatic diisocyanate monomer is selected from
2 the group consisting of dodecane-1,12-diisocyanate, dicyclohexylmethanediisocyanate,
3 cyclohexanediisocyanate, isophoronediiisocyanate, the triisocyanate of HDI, the biuret of HDI,
4 and tetramethylxylene diisocyanate.

1 14. The golf ball of claim 13 wherein the aliphatic diisocyanate monomer is
2 dicyclohexylmethanediisocyanate.

1 15. The golf ball of claim 12 wherein the high molecular weight polyol is selected from the
2 group consisting of polytetramethylene ether glycol, polyoxypropylene glycol, ethylene oxide
3 capped polyoxypropylene glycol, polyethylene adipate glycol, polypropylene adipate glycol,
4 polybutylene adipate glycol, the polycarbonate polyols, and the polycaprolactone polyols.

1 16. The golf ball of claim 15 wherein the high molecular weight polyol is
2 polytetramethylene ether glycol.

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1 17. The golf ball of claim 15 wherein the molecular weight of the high molecular weight
2 polyol is in the range of from about 1000 to about 3000.

1 18. The golf ball of claim 12 wherein the low molecular weight diol comprising an
2 aromatic moiety is selected from the group consisting of hydroquinone-di-hydroxyethyl ether,
3 resorcinol-di-hydroxyethyl ether, ethoxylates of the bis-phenols, the tetramethylxylylene diols,
4 and xylene glycol.

1 19. The golf ball of claim 18 wherein the low molecular weight diol comprising an
2 aromatic moiety is hydroquinone-di-hydroxyethyl ether.

1 20. The golf ball of claim 12 wherein the saturated diol curing agent is selected from the
2 group consisting of ethylene glycol, diethylene glycol, propylene glycol, 1,4- butanediol,
3 trimethylolpropane, cyclohexyldimethanol, and blends thereof.

1 21. The golf ball of claim 20 wherein the saturated diol curing agent is 1,4- butanediol.

1 22. The golf ball of claim 20 wherein the saturated diol curing agent is a blend of 1,4-
2 butanediol and trimethylolpropane.

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1 23. A method of making a golf ball comprising a core and a polyurethane elastomer cover
2 comprising molding around a pre-made core the reaction product of:

- 3 A) at least one aliphatic diisocyanate monomer;
4 B) at least one high molecular weight polyol;
5 C) at least one low molecular weight diol comprising an aromatic moiety; and
6 D) at least one saturated diol curing agent.

1 24. The method of claim 23 wherein the aliphatic diisocyanate monomer is selected from
2 the group consisting of dodecane-1,12-diisocyanate, dicyclohexylmethanediisocyanate,
3 cyclohexanediisocyanate, isophoronediiisocyanate, the triisocyanate of HDI, the biuret of HDI,
4 and tetramethylxylene diisocyanate.

1 25. The method of claim 24 wherein the aliphatic diisocyanate monomer is
2 dicyclohexylmethanediisocyanate.

1 26. The method of claim 23 wherein the high molecular weight polyol is selected from the
2 group consisting of polytetramethylene ether glycol, polyoxypropylene glycol, ethylene oxide
3 capped polyoxypropylene glycol, polyethylene adipate glycol, polypropylene adipate glycol,
4 polybutylene adipate glycol, the polycarbonate polyols, and the polycaprolactone polyols.

1 27. The method of claim 26 wherein the high molecular weight polyol is
2 polytetramethylene ether glycol.

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1 28. The method of claim 26 wherein the molecular weight of the high molecular weight
2 polyol is in the range of from about 1000 to about 3000.

1 29. The method of claim 23 wherein the low molecular weight diol comprising an aromatic
2 moiety is selected from the group consisting of hydroquinone-di-hydroxyethyl ether,
3 resorcinol-di-hydroxyethyl ether, ethoxylates of the bis-phenols, the tetramethylxylylene diols,
4 and xylene glycol.

1 30. The method of claim 29 wherein the low molecular weight diol comprising an aromatic
2 moiety is hydroquinone-di-hydroxyethyl ether.

1 31. The method of claim 23 wherein the saturated diol curing agent is selected from the
2 group consisting of ethylene glycol, diethylene glycol, propylene glycol, 1,4- butanediol,
3 trimethylolpropane, cyclohexyldimethanol, and blends thereof.

1 32. The method of claim 31 wherein the saturated diol curing agent is 1,4- butanediol.

1 33. The method of claim 31 wherein the saturated diol curing agent is a blend of 1,4-
2 butanediol and trimethylolpropane.